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Translation from the Polish language

THE PATENT OFFICE OF THE REPUBLIC OF POLAND

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A CERTIFICATE

Advanced Digital Broadcast Ltd.
Taipei, Taiwan

Advanced Digital Broadcast Polska Sp.z o.o.,
Zielona Góra, Polska

on December 30th 2002 submitted to the Patent Office of the Republic of Poland an application for granting a patent for an invention called „A system of transmission of television programs with a variable number of advertisements and a method of transmission of television programs."

The description of the invention, which was attached to this certificate, the author's claims and the drawings are true copies of the documents, which were submitted together with the application on December 30th 2002.

The application was submitted under the following number: P-358051.

Warsaw, as of February 20th, 2003

on behalf of the President
/-/ illegible signature
MA. Jowita Mazur
Specialist

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/page 2/

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A system of transmission of television programs with a variable number of advertisements and a method of transmission of television programs

The object of the invention is a system of transmission of television programs with variable number of advertisements and a method of transmission of television programs.

Currently, among television channels, we can distinguish channels with high and low advertisement contents. There are many advertisements in the first ones, which allow decreasing subscription fees for the viewers, because a part or all the costs of broadcasting a channel are covered from the fees of advertisers.

Low advertisement content makes a channel friendlier in reception, however forces an increase of the costs of subscription for reception of such channel.

Channels, which comprise most interesting programs, are most frequently

charged with the highest fee. Not all the users can afford to receive these channels. The cost of subscription can be reduced by broadcasting a greater number of advertisements. However, there is a group of users, who can afford a high subscription, in return for which they require a minimum number of advertisements on a given channel.

A solution to this problem is to broadcast two versions of the same channel. There are more advertisements broadcasted in one version, and the share of advertisements is lower or there are no advertisements in the second version. Still, with the technical resources, available at present a broadcast of a second version of the channel requires to double the throughput of the transmission band.

The American patent application US 2002/0,083,445 *'Delivering targeted advertisements to the set-top box'* describes a delivery of advertisements through an additional channel, dedicated to advertisements. However, only different configurations of advertising channels were presented there, including an analogue channel, a digital channel with low, high or variable throughput. The mentioned description does not refer to the method of use of advertisements broadcasted in such a way.

However, the application WO0/33848 *'Method apparatus for swapping the video contents of undesired commercial breaks or other video sequences'* gives a method of

replacing advertisements broadcasted in television signal by another signal, for example a program read from a hard disk or application presenting the content of the box with electronic mail of the user of the decoder. However, the aim of this method is only to exchange advertisements with other content, which is more interesting for the user, or with other advertisements, adjusted to a given user.

There are also known devices for recording television signal and its subsequent playback, called PVR, which is abbreviation for *Personal Video Recorder* in English. In these devices, a hard disk is the most common data carrier. PVR allows a simultaneous recording of a currently received television program and a program recorded earlier. This allows, among others, to shift the watched program in time, which means to play the program with a certain delay in relation to the broadcasted program with maintained continuity. An exemplary solution of a device for recording television signal and its subsequent playback is presented in the American patent description US 5,371,551 (Re. 36801) *"Time delayed digital video system using*

concurrent recording and playback'.

The essence of the invention is that in the system of transmission of television programs with a variable number of advertisements, comprising a transmitter, transmitting television programs and advertisements and devices receiving television programs and advertisements, the transmitter has a system for broadcasting the signal controlling the number of displayed advertisements, and devices receiving the television programs have a system for receiving the signal controlling the number of broadcasted advertisements.

Favorably, television programs are transmitted on primary channels, advertisements on a channel with advertising units, and the signal controlling the quantity of displayed advertisements on control channel.

Favorably, the control channel includes tags of P program, controlling the record of signal from the primary channel and tags of R advertisement, controlling the playback of the recorded signal or advertisement.

Favorably, in case when the break between the record and playback of the recorded signal is shorter than the specified time, the recording of signal is stopped, and signal from the primary channel is played.

Favorably, together with the tag of R advertisement, a list of advertisements, which are to be played during the advertising break, is broadcasted.

Favorably, in case when the tag of R advertisement becomes inactive, the currently played advertisement is played till the end, and after it is finished, the playback of the recorded program is continued.

Favorably, advertisements are formed into advertising units, marked with tags, consisting of a code of the segment, which defines the main segment of products, sub-segment code, which defines the category of the product in a given segment in detail, a code of producer of the product and a code of advertisement, which identifies advertisement of a given producer from a specified segment.

Favorably, at choosing the advertising unit to be displayed it is checked if it is not a competitive unit to the previously displayed unit.

Favorably, television programs are transmitted on primary channels together with the signal controlling the quantity of displayed advertisements and advertisements on the channel with advertising units.

Favorably, the signal controlling the number of displayed advertisements is

displayed in the device receiving television programs, to which a control channel is assigned.

The essence of the invention is also that in the method of transmission of television programs in the system of transmission of television programs with a variable number of advertisements including a transmitter transmitting television programs and advertisements and devices receiving television programs and advertisements, on the primary channel, besides the television program, there is also a control signal broadcasted, which forces display of advertisements.

Favorably, advertisements are displayed on the screen of the television set after a displaying a television program is stopped.

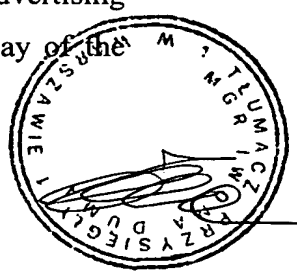
Favorably, the advertisements are displayed in a specific place on the screen together with the display of television program.

Favorably, advertisements are displayed after activating the control signal by means of a specific button of the remote control unit or after choosing the channel with advertisements.

Favorably, the control signal includes P and R tags, which force a break in displaying the signal from the primary channel and a start of advertising display, tags forcing a background signal recording from the primary channel on a data carrier, tags forcing playback of signal from primary channel and tags forcing playback of signal from the data carrier and tags stopping the background signal recording from the basic channel on the data carrier.

In the simplest solution of the system of television program transmission with a variable number of advertisements, the transmitter together with the television program and advertisements transmits the signal controlling the number of displayed advertisements, and devices receiving television programs and advertisements posses a system for receiving the signal controlling the number of displayed advertisements.

The solution, which is particularly suitable for application in digital television, is based on a system of broadcasting television channels in two versions, where the second version takes up only a fragment of the band occupied by the primary channel. In the system, the primary channel is broadcasted with a low share of advertising contents (or no advertisements at all), and a channel controlling the display of the



second channel, with a higher share of advertisements. In the broadcasting channel there are tags broadcasted, which force a playback of advertisement in a specified time. During the playback of the advertisement, the signal from the primary channel is recorded in the storage of the decoder, and after it is finished – played with a delay. Advertisements, displayed on the second channel are collected from the storage of the decoder according to the preferences of the user.

The user has a choice of at least two versions of the same program, the first of which is the version broadcasted on the primary channel, and the second is created from the version broadcasted on the primary channel, enriched with advertisements broadcasted on the advertisement channel or played from the data carrier.

Availability of different versions of one program to the user has many advantages, of which the main ones are related to the differentiation of television fees. For example, when the user cannot afford a high fee for watching an interesting program, he/she can change to a channel, on which the program is interrupted with advertisements, which decreases the fees for it.

Moreover, in the primary channel special programs can be broadcasted, for example after the program as an interlude, such as additional information about the program broadcasted earlier, informational programs, available only to the users receiving the primary channel – only advertisements can be broadcasted in this time on the advertising channel. Besides it, there is a possibility of connecting the presented solution with the system, known in English as '*Pay-per-view*', which enables to calculate the fees for the users only for what they have watched. As a result of combination of both systems, there is a possibility of differentiating the fees for the channel, from which a given program was received.

Fig. 1 illustrates a structure of a device, receiving television programs, which is the decoder 101, with a built-in system for recording television signal and its further playback. In the decoder 101, a signal receiving block 102 was distinguished, a block of the processor 103 , the Audio/Video block 104, which is responsible for generating signal in the format acceptable by the television set and the mass storage block 105, which serves the role of a device for recording television signal and its later playback, which is used by PVR software, installed in the decoder, which is usually a hard disk.

The components of the block 102 of signal receiving include tuners and demodulators, transforming the signal from analogue into digital form. The block 103 of the processor deals with signal processing (among others decompression of MPEG signal) and handles the decoder's software. The components of the block 103 of the processor

include among others the signal processing block 111, responsible for operations on the received signal, such as among others signal descrambling and decompression and control of data streams transfer to other blocks, the block 112 of choosing signal reception, which receives commands of the user, made by means of a remote control unit, related to the channel, which is to be displayed on the screen of the TV set. They also include the block 114, handling the mass storage, controlling the transfer of data streams between the processor 103 and the mass storage block 105 and the marker analysis block 113, which analyzes the tags broadcasted in the control channel, and based on them it sends appropriate commands related to the playback and recording of the signal to the signal processing block 111 and the mass storage block 114. The above blocks should be treated as functional blocks, in the actual embodiment they can be joined together or disconnected into smaller fragments.

From the device 161, transmitting the television program, advertisements and, by means of the control signal generator 162, the signal controlling the quantity of displayed advertisements a stream 121 of television signal is transmitted through a network 171 of cable, terrestrial or satellite television. This stream is received by block 102 of the decoder, in which it is processed into a digital stream 122 of television signal comprising of a signal of primary channel, advertisement channel and control channel. The digital stream 122 of television signal is next processed into a descrambled and decoded digital signal 123 to be displayed on the screen of the TV set, and next processed into signal 124 in a form acceptable by the receiver, for example PAL, SECAM, NTSC. Moreover to the signal processing block 111 commands 125, given by system 112 of choosing the reception signal, and commands 127 given by the block of tags analysis, are directed. However, from the signals processing block 111, the signal 126 of the control channel is transmitted to the marker analysis block 113, from which in turn commands 129 are issued to the block, handling mass storage. Besides the above described signals and commands between the signal processing block 111 and mass storage block 105, there is a television data

stream 130, 131 transmitted. Mass storage block 105 and signal processing block 111

can also be connected with a data bus directly, and then the block 114, handling mass storage would only control data transfer.

Therefore the signal of primary channel is transmitted via streams 121, 122, 123, 124, or 121, 122, 130, 131 - if it is directed to the mass storage block. However advertisements are received from a stream of television signal, from the channel, transmitting advertising units – via streams 131, 130, 123, 124.

In the channel with advertisements, three signals can be displayed, to be precise the signal from the primary channel via streams 121, 122, 123, 124, the signal from primary channel, played with a delay, it is the signal from mass storage block via streams 131, 130, 123, 124 and advertisement signal, played from the mass storage block and transmitted via streams 131, 130, 123, 124.

In the decoder illustrated in fig. 1 one can distinguish a path 151 of the transfer of signal from the primary channel to the television set, a path 152 of the transfer of control signal and a path 153 of the transfer of signal of the channel with advertisements.

Advertising materials, designated to be displayed when a television channel is watched, are sent in a separate channel or advertising channels. Depending on the needs, the operator can set one common advertising channel, in which advertisements will be broadcasted for various television channels, or assign a separate advertising channel.

In case of the first solution advertisements allocated to all television channels are subjected to be recorded on the disk, irrespectively of the currently watched channel. Transfer of data in such channel is relatively high and requires an increased activity of the storage system (for example a hard disk). However this solution guarantees availability of the majority of advertising units.

In the second solution only advertisements, broadcasted in an auxiliary channel, dedicated to one, currently watched television channel, are recorded on the disk. The volume of data transfer for each of the advertising channels is small – approximately proportional to the percentage content of the advertisements in the whole audiovisual broadcast of this television channel.

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In case of such solution, advertisements for the television channel, which was not watched for a longer time, are available only after some time from the moment of choosing this channel, because the decoder has to read them from the advertising channel.

In order to enable a broadcast of advertisement channel in other stream than the primary channel, the block of signal reception and the processor must enable processing of two television signal streams simultaneously – this is possible for example thanks to two tuners and demodulators comprised in the block of signal reception and a processor capable of handling of a few streams (for example, the processor ST5514 of STMicroelectronics).

Each advertising unit constitutes a single advertising film, which is independent and different from advertisements of other products and other, even similar advertisements of the same product. The structure of the advertising unit is illustrated in fig.2. Such unit consists of a header and data. The header comprises an identifier 201 of the unit (unique for every unit), channel identifier 202 or a list of identifiers of channels to which the given unit is allocated, time range 203 defining the hours of times of the day, when the given advertisement is to be broadcasted, the date of expiry 204, setting out the date, after which the advertisement will be withdrawn from the advertisement set and should be no longer displayed – thus it sets the time, after which the advertisement can be definitely erased from the storage of the decoder, units 205, which are competitive to the given advertisement – the field allows avoiding in the composition consecutive advertising films, vicinity of advertisements of similar products of different producers or a different clash; during the automatic generation of a series of advertisements this field will allow the decoder to set the series, in order to avoid undesirable neighborhood, the time 206 of duration (length) of a given advertisement. After the header, there is a data block 207, which constitutes the contents of the advertisement.

The operator can define himself the method of identifying a unit. An exemplary method of recording the identifier of a unit, besides its unique identification, allows to compare the advertisements semantically and apply more

advanced rules of choice. This method is presented in fig. 3. It consists of the

following fields:

- code 211 of the segment, consisting of 3 signs, which defines the main segment of products, to which the given advertisement is related (e.g., 111 – mechanical vehicles, 222 – food products, 333 – products for children);
- code 212 of sub-segment, consisting of 4 signs, which specifies a detailed product category in a given segment (for example, for the segment of mechanical vehicles this can be 1001 – sports cars, 1002 – off-road vehicles, 2003 – trucks);
- code 213, consisting of 5 signs, which identifies advertisement of a specified producer out of a defined segment.

Channel identifiers, to which the given unit is designated, can be given in form of a list of defined channel numbers, or as a type of channels or programs, broadcasted on them, for example a unit can be allocated to channels no. 23 and 45, or to sport programs and news.

The time range, which defines the broadcasting time of an advertisement can also be given in a form of a list, in which broadcasting hours of the advertisement are defined (e.g. 12.00-18.15) or specific days (e.g. Monday, 12.00-22.00).

Competitive units to the given advertisement can be specified by providing a list of identifiers or samples of identifiers of competitive units. For example considering the above described recording of identifier, if this list is to contain element 111xxxxxxxxxxxx – this will mean, that all units related to the segment of mechanical vehicles will be treated as competitive units.

The content of the main television channel is transmitted in a standard way. The second channel, advertising channel, is created in the decoder on the grounds of information broadcasted in the control channel.

Examples of broadcasting the primary channel and the channel with advertisements were presented in fig. 4 and 5. In the control channel tags are broadcasted:

tag P and tag R, which define if a program is currently broadcasted in the primary channel (then tag P is equal 1) or a break (P=0), and if in the channel with advertisements an advertisement is to be currently played (R=1) or not (R=0). Since in the control channel tags are broadcasted, it occupies a slight part of the band in comparison to the primary channel.

Broadcasting tag P=1 is forced in PVR system by background recording of

signal from the primary channel. When tag P=0, background recording of the signal is stopped. Broadcasting tag R=1 forces a break of the signal playback from the primary channel and a start of advertisement displaying. Tag R=0 orders a playback of signal from primary channel.

Fig. 4 illustrates a situation, in which program 301, 303, 305, 311, 313, 315 on the primary channel is interrupted with breaks, which can be for example informational breaks 302, 304 or advertisement insertions 312, 314. When a program is broadcasted, tag P=1, when an insertion is broadcasted then tag P=0. During broadcasting insertions on the primary channel, advertisements are broadcasted on the channel with advertisements (R=1).

Fig. 5 shows a situation, where program 321, 322, 323 on the primary channel is not interrupted with advertisements, while after it is finished an inter-program break 324 is broadcasted, for example a cultural one or including current news, with the length equal to the length of advertisements 332, 334, which will be broadcasted on the channel with advertisements. Users, who receive a version of the channel with advertisements during the program broadcasted in blocks 331, 333, 335 will watch advertisements 332, 334. In another solution advertisement 332 will be displayed in a specific place of the TV set in the box with specific dimensions during the display of the program 322 without interrupting it. Advertisements can be displayed after their activation by means of a special remote control button or after changing to a specific channel.

The algorithm of operation of the system handling two channels is illustrated in fig. 6. Handling the two channels starts when the user chooses a specific channel in step 401. In step 402 the system starts to playback the signal from the primary channel. Next, in step 403,

reads the closest broadcasted values of tags P and R. Next, in step 404, the system monitors the upcoming tags in the control channel and observes their change. A change of tag P from 0 to 1 causes in step 405 activation of signal recording from the primary channel to the memory. A change of tag P from 1 to 0 causes in step 406 that signal recording from primary channel to the memory is switched off. A change of the tag R from 0 to 1 causes in step 407 a suspension of

playback of signal from the memory and a start of procedure of advertisements playback in step 408. A change of the tag R from 1 to 0 causes in step 409 a suspension of the procedure of advertisement playback and a playback of signal recorded in the memory in step 410.

Step 409 of playback of the signal recorded in the memory is based on checking if a program is recorded in the memory. If so, it is played. If not, signal broadcasted on the primary channel is played. Signal from the primary channel is played also when the program from the memory is finished.

In order to relieve the memory chip of constant data recording and reading, it is possible to check during the reading, if the difference between the broadcasting time of the currently played program content and the current time is lower than a specific value, for example 1 second. This means that there is a little time shift between the command of the start of recording the signal to the memory and its playback. If such a short break occurs, background signal recording should be switched off and a transition to playback directly from the primary channel should be made.

In the case illustrated in fig. 5, when the user changes to other channel during the time when the program is played with a delay (for example after the first advertising break), the decoder should still record the contents of the current channel.

The procedure of changing the channel started in step 401 after the user has chosen a channel, and before the procedure illustrated in fig. 6, is presented in fig. 8. In step 601, after the command of selecting a new channel, the procedure checks in step 602, if for the currently chosen channel background recording of program is switched on. If so, in step 603, the procedure sets the recording timer

of recording the contents of the current channel. Such timer can be set for example at 3 minutes. The timer from this moment counts down the set time. When it comes to zero, it stops recording the signal from the channel, for which it was set. This recording becomes inactive and other signal can be recorded in its place. In step 604 it is checked if the newly chosen channel has background recording set. If so, the timer of this channel is deleted in step 605, because in a moment it will be an active channel.

In the last step 606 a transition is made to display the selected channel, according to steps from the procedure in fig. 6. Thanks to this procedure, when the user changes from a channel, the signal of which is recorded, to another channel, however for the time not longer than 3 minutes the signal of this channel will still be recorded. When the user comes back to this channel, he will be able to watch the program, being recorded from the moment, when he/she left the channel.

In order to the enable the procedure to be operated by the decoder, the signal receiving block and the PVR system must be able to service as many streams as there are programs simultaneously recorded and the stream of currently displayed channel.

Broadcasting of advertisements starts together with the detection of the start of the advertising block (a change of tag R from 0 to 1). After choosing an advertisement, it is displayed. The procedure of playback of advertisements consecutively selects advertisements and plays them, by the moment, when there is a command of stopping the advertisements playback (a change of tag R from 1 to 0). There are two methods of finishing this procedure. In the easiest method, the display of advertisement is switched off together with the arrival of the command of finishing the display. Such method proves to be good in case when advertisements have identical length and the length of the advertising block is a multiplication of the length of the advertisements. It may also happen that advertisements have different lengths and the length of the advertising block is not a multiplication of the length of advertisements. In such case the command of suspending the procedure of advertisements playback causes an end to their playback only in the moment of finishing the playback of currently broadcasted advertisement. Only after its end, the system comes to playback of the program.

In the control channel, together with the tag, which indicates that advertisement has been sent (R=1), a list of indicators of preferred advertisements can be sent. Then, first the advertisements requested by the operator will be displayed. If these advertisements are not recorded in the local memory, or when the list of advertisements is finished, other advertisements are played out of the advertisements set, which is available in the local memory. The algorithm of the choice of

advertisement is presented in fig. 7. It starts in step 501 from reading the list of advertisements, requested by the operator, broadcasted in the control channel. If this list exists and if it contains advertisements, unused in the current advertisement break, which is checked in step 502, a next advertisement is fetched from the list in step 503. Next, the procedure checks in step 504, if this advertisement is available in the local memory. If so, the procedure finishes and comes to displaying advertisement in step 511. If there is no operator's list or all its advertisements are used, the procedure reads in step 505 the current conditions, which are the number of the currently chosen channel and the current time. Next, after defining the advertisements set in step 506, it chooses from the set of available advertisements the ones, which fulfill the current conditions. Next, when there are such advertisements and they have not been used yet, which is conducted in block 507, it chooses at random (draws) one of them in step 508. Next it checks in step 509, if the previous advertisement is not a competitive advertisement to this advertisement and vice versa – if this advertisement is not competitive to the previous advertisement (by means of comparing the fields of the identifier of the advertisement and the list of competitive advertisements). If not, the advertisement will be displayed in step 511. If the advertisement is competitive, next advertisement from the set is chosen at random (drawn). If the set is empty (no advertisements fulfilling the conditions or all advertisements used), in step 510 any advertisement from the set of advertisements, available in the local memory is drawn and displayed in step 511. The procedure of choosing the advertisements can be complemented by a possibility of a choice by the user of the type of advertisements, which are to be displayed. For example, the user could decide that he/she would like to watch advertisements from the child products segment. The user could also decide on the list of segments, out of which he/she would like to watch advertisements or block the segments, which are not interesting to him/her. The method of choice of the type of advertisement is obvious still and based on known solutions, that is why it is not presented in a diagram.

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During reception of the television signal, there is a procedure active in the background, which monitors the advertisement channel – the general advertisement channel or advertisement channel assigned to the currently watched primary channel. Advertising units are fetched from this channel and recorded in the local memory. When there is no space in the local memory, new units are recorded in place of the

oldest or these, which validity runs out soon. The method of operation of such procedure is well-known and evident. The method of operation of the procedure for deleting advertising units for which the validity has expired is similarly obvious. Such procedure can be, for example started once a day. It reviews the advertising units, checking their expiry date, while when it finds a unit, the validity of which has expired, deletes it from the memory. There is also such version of the embodiment of the system possible, in which more than one version of the advertisement channel will be broadcasted. This requires applying a separate control channel for each of the new advertising channels. In each control channel advertisement and program tags can be broadcasted at different times. Moreover, for each such channel different lists of advertisements for displaying can be broadcasted.

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PhD Eng LUDWIK HUDY
Patent Attorney
Reg. No 3098

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Patent Claims

1. A system of transmission of television programs with a variable number of advertisements, including a transmitter transmitting television programs and advertisements and devices receiving television programs and advertisements, characterized in that the transmitter (161) has a system (162) for transmitting the signal controlling the number of displayed advertisements, and devices (103) receiving the television programs have a system (113) for receiving the signal controlling the number of displayed advertisements.

2. A system of transmission of television programs according to claim 1, characterized in that the television programs are transmitted on primary channels, advertisements on the channel with advertising units, and the signal controlling the number of displayed advertisements on control channel.

3. A system of transmission of television programs according to claim 1, characterized in that the control signal includes tags of program P, which control recording of the signal from the primary channel and tags of advertisement R, controlling playback of the recorded signal or advertisement.

4. A system of transmission of television programs according to claim 3, characterized

in that when the break between the recording and playback of the recorded signal is shorter than the specified time, signal recording is stopped, and signal from the primary channel is played.

5. A system of transmission of television programs according to claim 3, characterized in that together with the tag of advertisement R, a list of advertisements, which are to be played during the advertisement break is broadcasted.

6. A system of transmission of television programs according to claim 3, characterized in that the tag of advertisement R becomes inactive, the currently broadcasted advertisement is played till the end, and after it ends the broadcasting of the recorded program is continued.

7. A system of transmission of television programs according to claim 1, characterized in that advertisements are formed in advertising units, marked with identifiers, consisting of a segment code (211), which determines the main segment of products, a sub-segment code (212), which determines in a detailed way the category of product in a given segment, a product's producer code (213) and advertisement code (214), which identifies the advertisement of a specific producer from a specific segment.

8. A system of transmission of television programs according to claim 3, characterized in that at choosing the advertising unit to be displayed, it is checked if it is not a competitive unit for the previously displayed unit.

9. A system of transmission of television programs according to claim 1, characterized in that television programs are transmitted on primary channels together with the signal controlling the number of displayed advertisements and advertisements on the channel with advertising units.

10. A system of transmission of television programs according to claim 9, characterized in that the signal controlling the number of displayed advertisements is

separated in the device (111), which receives television programs, in which there is control channel assigned to it.

11. A method of transmission of television programs in the system of transmission of television programs with a variable number of advertisements, which includes a transmitter transmitting television programs and advertisements and a device receiving television programs and advertisements, characterized in that on the primary channel besides the television program there is a control signal transmitted, which forces advertisements display.

12. A method of transmission of television programs according to claim 11, characterized in that the advertisements are displayed on the screen of television set after stopping the display of the television program.

13. A method of transmission of television programs according to claim 11, characterized in that advertisements are displayed in a specific place on the screen together with a display of the television program.

14. A method of transmission of television programs according to claim 11, characterized in that advertisements are displayed after activation of control signal by means of a determined button of remote control unit.

15. A method of transmission of television programs according to claim 11, characterized in that it displays advertisements after choosing the advertising channel.

16. A method of transmission of television programs according to claim 11, characterized in that the advertisements to be displayed on the screen of the television set are broadcasted on the advertisement channel and recorded on a data carrier and fetched from the data carrier after activating the control signal.

17. A method of transmission of television programs according to claim 11, characterized in that the control signal includes tags P and R, which force a stop of signal playback from the primary channel and a start of advertisements display, the tags, which force background recording of the signal from the primary channel, on a

data carrier,

90 the tags, which order to play the signal from the primary channel and the tags, which order to play the signal from the data carrier, and the tags, which stop background recording of the signal from the primary channel on the data carrier.

Plenipotentiary
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PhD Eng LUDWIK HUDY
Patent Attorney
Reg. No 3098

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/the subsequent pages are numbered in handwriting from 5 to 10/

/the subsequent pages are stamped at the bottom of the page with the oblong stamp with the following contents:/

PLENIPOTENTIARY
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PhD Eng. LUDWIK HUDY
Patent Attorney
Reg. no. 3098

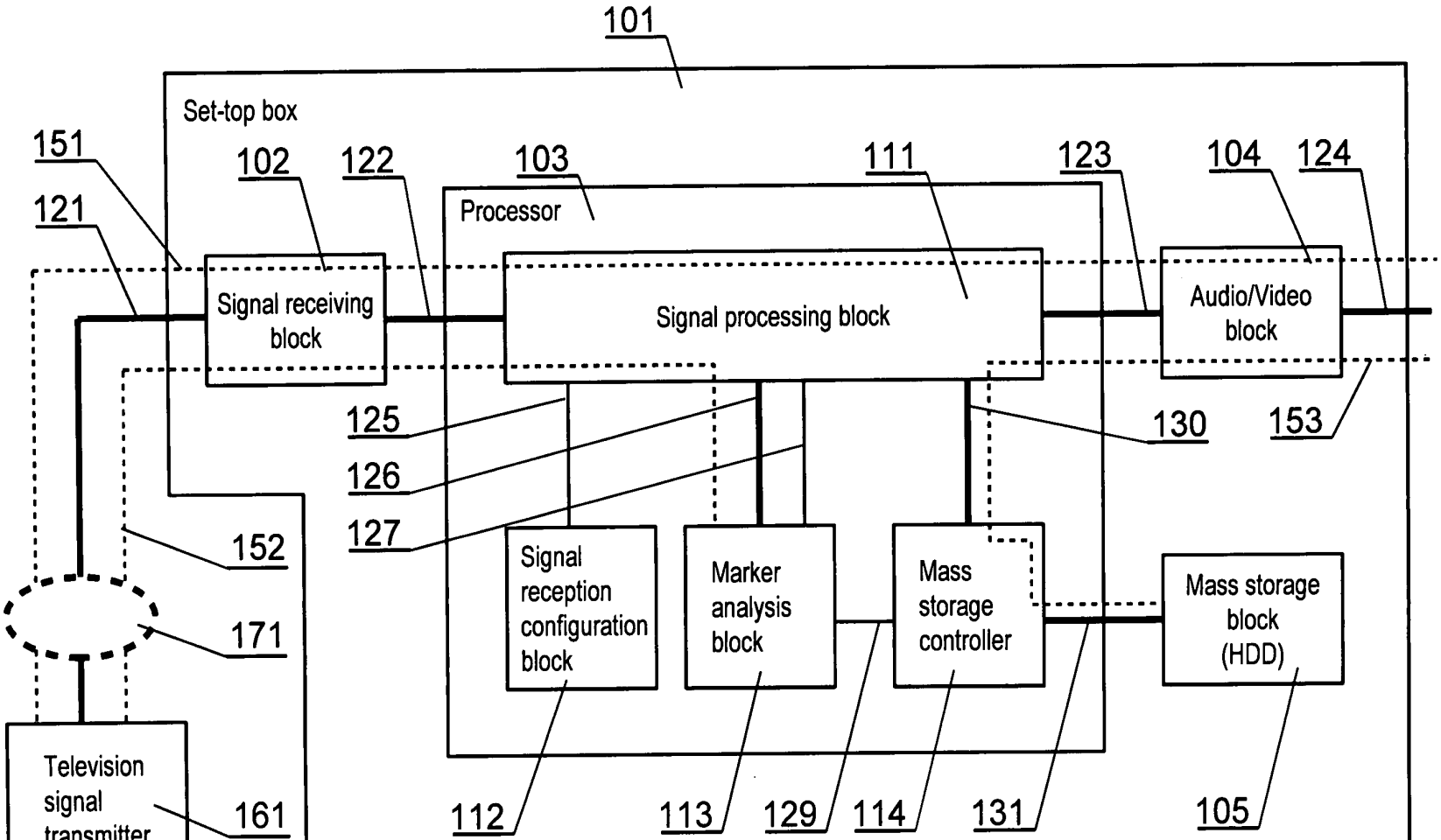

101
Set-top box
151
121
102
122
103
111
123
104
124
Processor
Signal receiving block
Signal processing block
Audio/Video block
125
126
127
130
153
152
171
Signal reception configuration block
Marker analysis block
Mass storage controller
Mass storage block (HDD)
Television signal transmitter
161
Control signal generator
162
112
113
129
114
131
105

Fig. 1

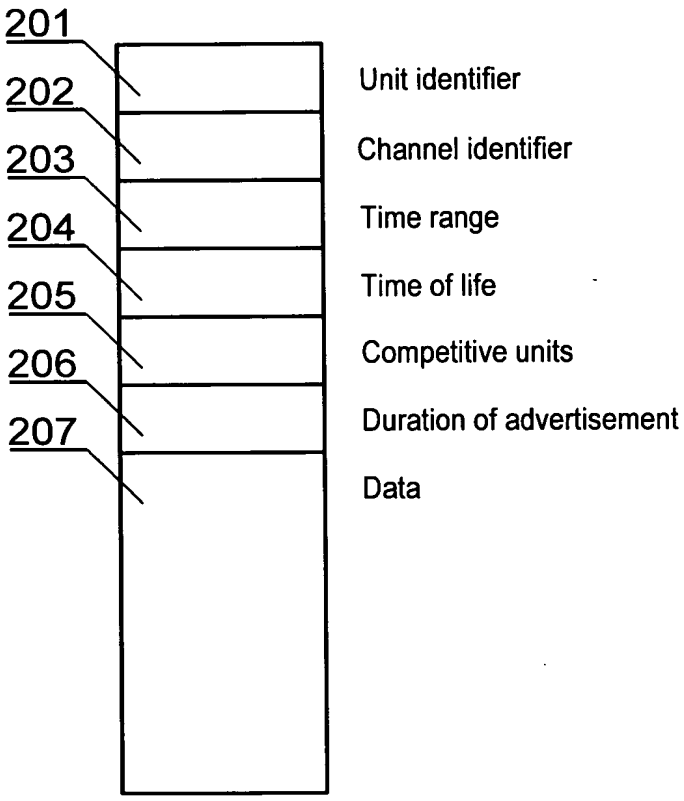

201
202
203
204
205
206
207
Unit identifier
Channel identifier
Time range
Time of life
Competitive units
Duration of advertisement
Data

Fig. 2

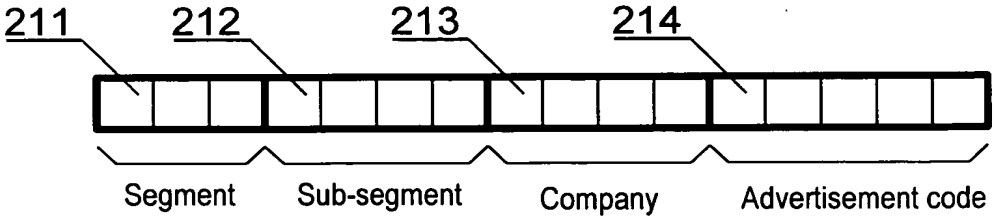

211
212
213
214
Segment
Sub-segment
Company
Advertisement code

Fig. 3

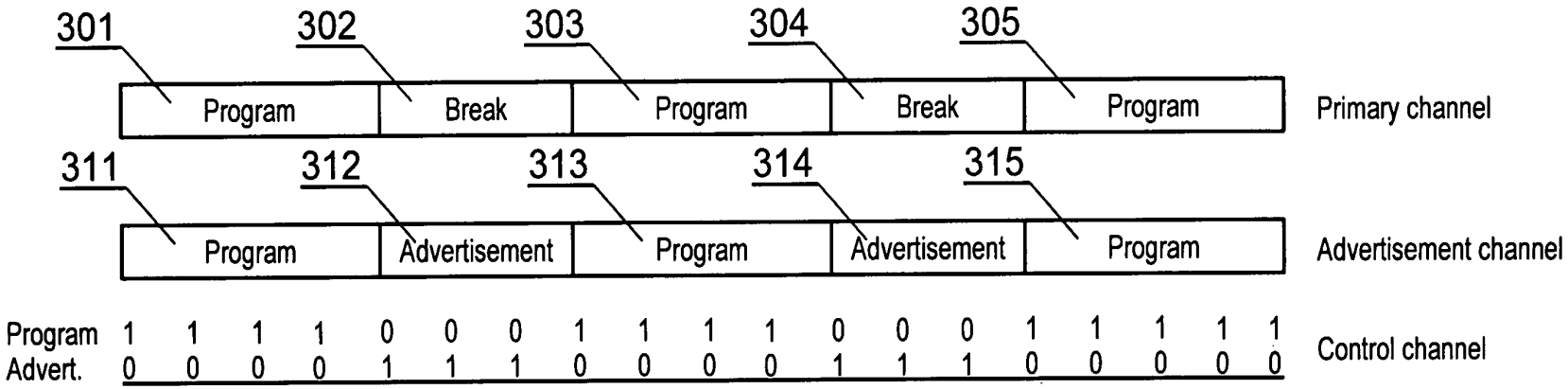

301
302
303
304
305
Program
Break
Program
Break
Program
Primary channel
311
312
313
314
315
Program
Advertisement
Program
Advertisement
Program
Advertisement channel
Program 1 1 1 1 0 0 0 1 1 1 1 0 0 0 1 1 1 1 1
Advert. 0 0 0 0 1 1 1 0 0 0 0 1 1 1 0 0 0 0 0
Control channel

Fig. 4

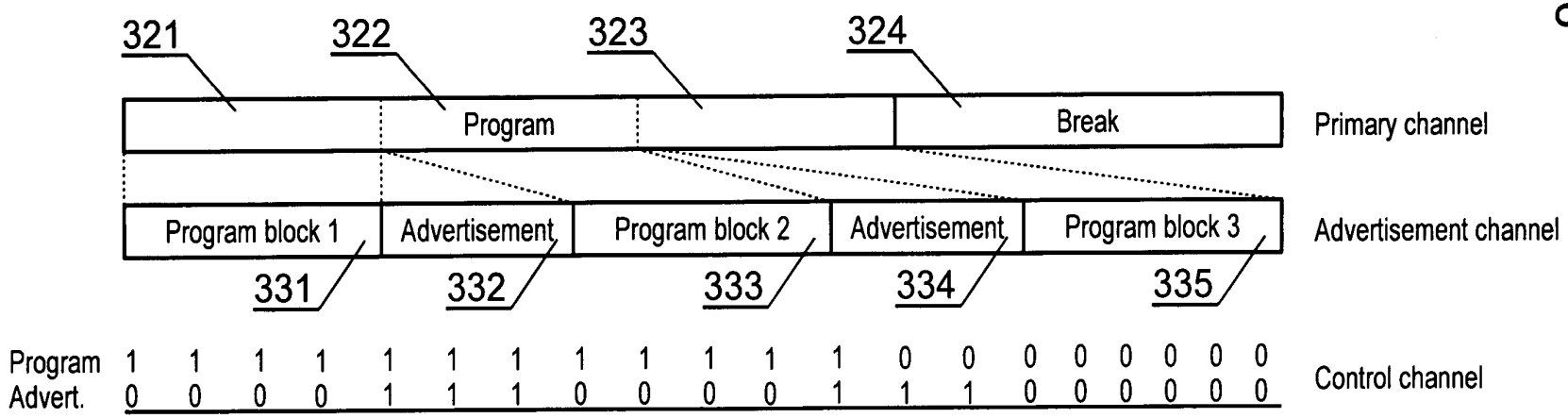
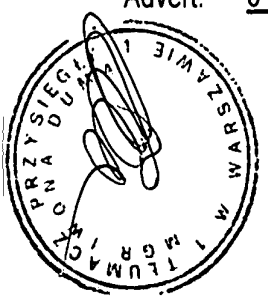

321
322
323
324
Program
Break
Primary channel
Program block 1
Advertisement
Program block 2
Advertisement
Program block 3
Advertisement channel
331
332
333
334
335
Program 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0
Advert. 0 0 0 0 1 1 1 0 0 0 0 1 1 1 0 0 0 0 0 0
Control channel

Fig. 5



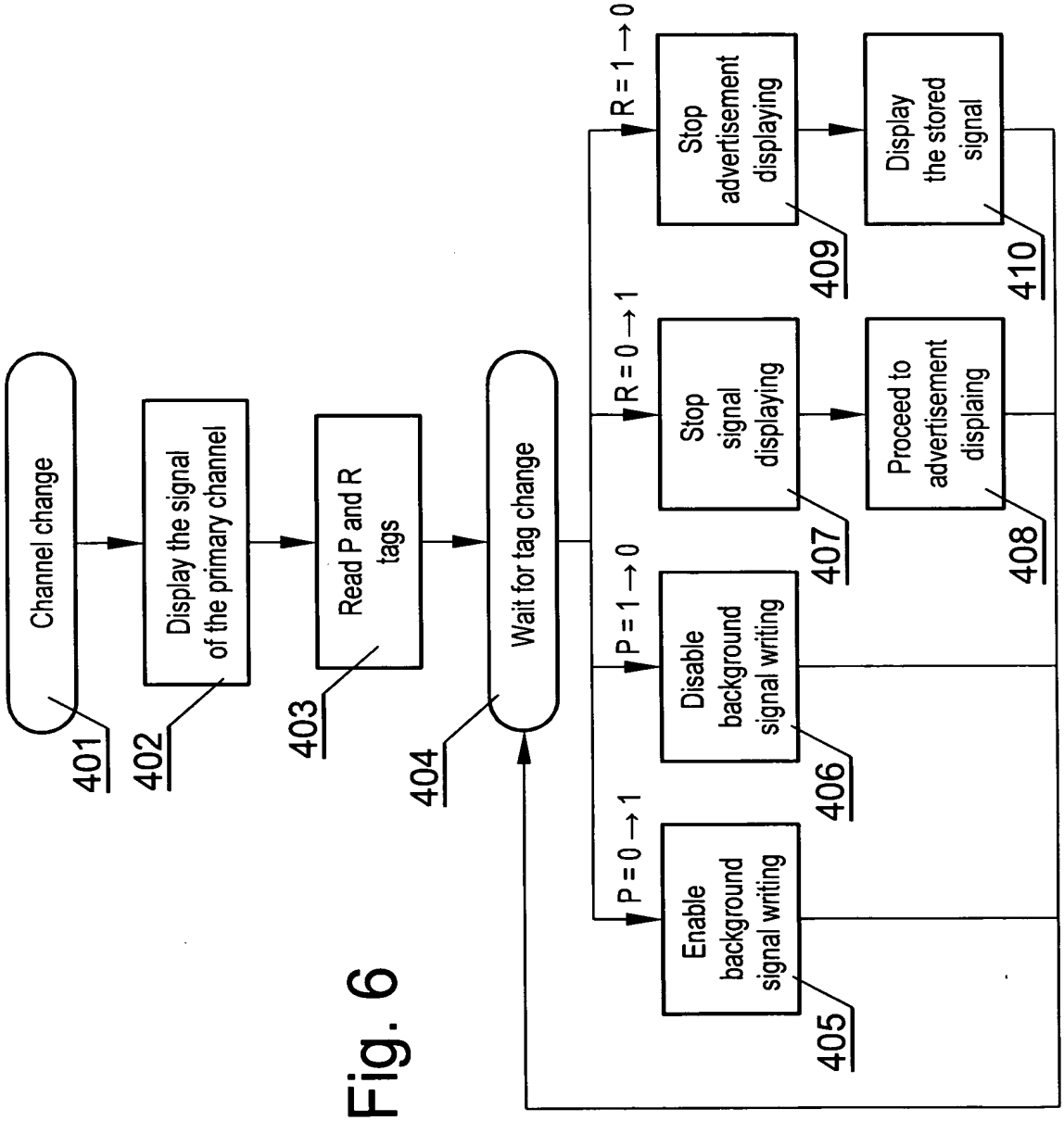

Channel change
401
Display the signal of the primary channel
402
Read P and R tags
403
Wait for tag change
404
P = 0 → 1
Enable background signal writing
405
P = 1 → 0
Disable background signal writing
406
R = 0 → 1
Stop signal displaying
407
Proceed to advertisement displaing
408
R = 1 → 0
Stop advertisement displaying
409
Display the stored signal
410

Fig. 6

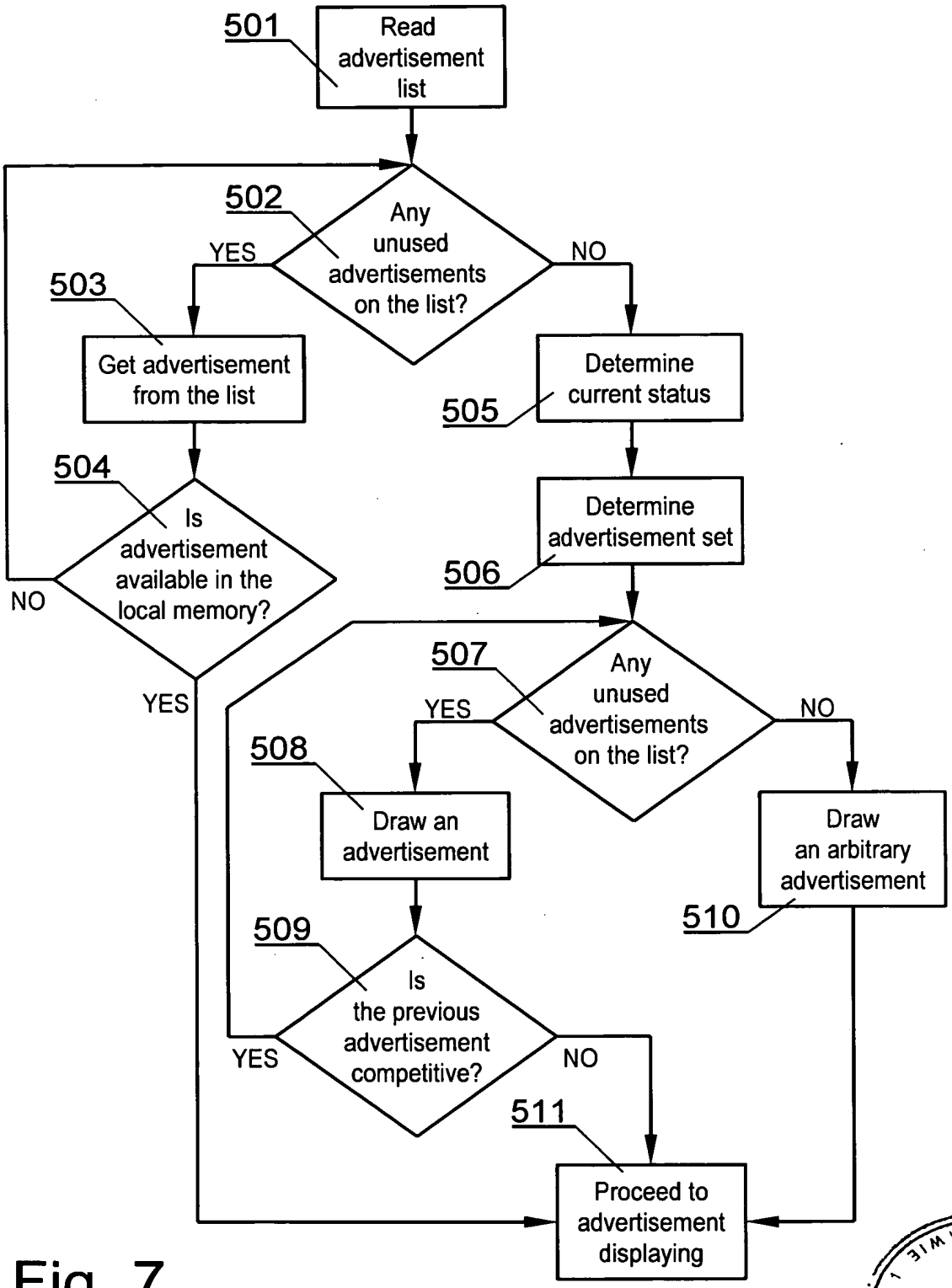

501
Read advertisement list
502
Any unused advertisements on the list?
YES
NO
503
Get advertisement from the list
504
Is advertisement available in the local memory?
NO
YES
505
Determine current status
506
Determine advertisement set
507
Any unused advertisements on the list?
YES
NO
508
Draw an advertisement
509
Is the previous advertisement competitive?
YES
NO
510
Draw an arbitrary advertisement
511
Proceed to advertisement displaying

Fig. 7

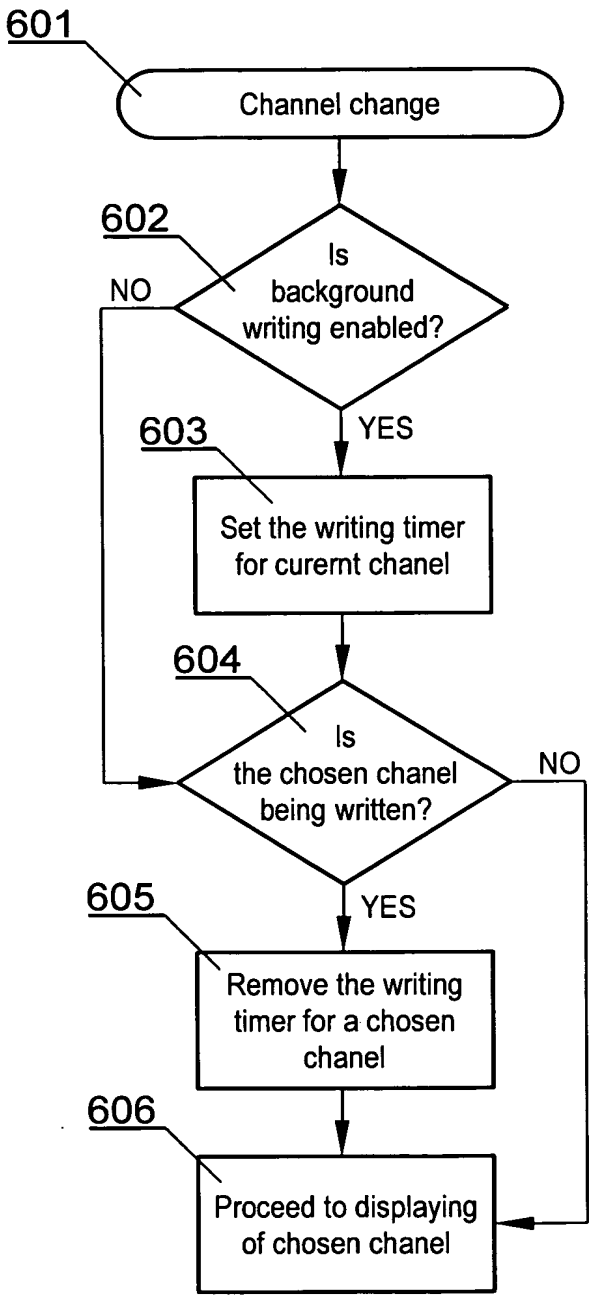

601
Channel change
602
Is background writing enabled?
NO
YES
603
Set the writing timer for curernt chanel
604
Is the chosen chanel being written?
NO
YES
605
Remove the writing timer for a chosen chanel
606
Proceed to displaying of chosen chanel

Fig. 8

Repertory No.: 668/11/2003

I, the undersigned, Iwona Duma, sworn translator of the English language for the District Court of the City of Warsaw, hereby certify that the above text is a true and complete translation of the original Polish document.

Warsaw, 6 November, 2003.